

## WEST Search History

DATE: Friday, April 21, 2006

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Name Query

*DB=PGPB,USPT; PLUR=YES; OP=OR*

☐ L4 558/338.ccls.

☐ L2 6469194

☐ L1 ("20020022736"|"3773809"|"4082881"|"4705881"|"6048998"|"6127567"|"6171996"|"6380

END OF SEARCH HISTORY

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NEWS 7 JAN 17 IPC 8 in the WPI family of databases including WPIFV  
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NEWS 14 FEB 28 TOXCENTER reloaded with enhancements  
NEWS 15 FEB 28 REGISTRY/ZREGISTRY enhanced with more experimental spectral  
property data  
NEWS 16 MAR 01 INSPEC reloaded and enhanced  
NEWS 17 MAR 03 Updates in PATDPA; addition of IPC 8 data without attributes  
NEWS 18 MAR 08 X.25 communication option no longer available after June 2006  
NEWS 19 MAR 22 EMBASE is now updated on a daily basis  
NEWS 20 APR 03 New IPC 8 fields and IPC thesaurus added to PATDPAFULL  
NEWS 21 APR 03 Bibliographic data updates resume; new IPC 8 fields and IPC  
thesaurus added in PCTFULL  
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NEWS 23 APR 12 LINSPEC, learning database for INSPEC, reloaded and enhanced  
NEWS 24 APR 12 Improved structure highlighting in FQHIT and QHIT display  
in MARPAT  
NEWS 25 APR 12 Derwent World Patents Index to be reloaded and enhanced during  
second quarter; strategies may be affected  
  
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=> hydrocyanation

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FILE 'CAPLUS' ENTERED AT 17:08:14 ON 21 APR 2006

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=> hydrocyanation

L1 968 HYDROCYANATION

=> l1 and lewis

48610 LEWIS

L2 82 L1 AND LEWIS

=> l2 and (recove? or recycl? or reus?)

630584 RECOVE?

170682 RECYCL?

35967 REUS?

L3 10 L2 AND (RECOVE? OR RECYCL? OR REUS?)

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L3 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2005:396149 CAPLUS  
 DOCUMENT NUMBER: 144:152131  
 TITLE: Process for catalyst **recovery** from  
**hydrocyanation** product mixtures  
 CORPORATE SOURCE: BASF Aktiengesellschaft, UK  
 SOURCE: Research Disclosure (2004), 488(Dec.), P1502-P1512  
 (No. 488002)  
 CODEN: RSDSBB; ISSN: 0374-4353  
 PUBLISHER: Kenneth Mason Publications Ltd.  
 DOCUMENT TYPE: Journal; Patent  
 LANGUAGE: English  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RD 488002		20041210		
PRIORITY APPLN. INFO.:			RD 2004-488002	20041210
AB A process for <b>recovering</b> diphosphite-, diphosphinite-, diphosphonite- or phosphite-phosphinite-containing compds. from a mixture comprising diphosphite-, diphosphinite-, diphosphonite- or phosphite-phosphinite-containing compds. and organic mononitriles and organic dinitriles, using liquid-liquid extraction, wherein the molar ratio of organic mononitrile present to organic dinitrile is from about 0.65 to about 2.5 and wherein the extraction solvent is a saturated or unsatd. alkane or saturated or unsatd. cycloalkane.				

L3 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:992727 CAPLUS  
 DOCUMENT NUMBER: 141:425573  
 TITLE: Process for production of dinitriles by butadiene  
**hydrocyanation**  
 INVENTOR(S): Bourgeois, Damien; Rosier, Cecile; Leconte, Philippe  
 PATENT ASSIGNEE(S): Rhodia Polyamide Intermediates, Fr.  
 SOURCE: Fr. Demande, 18 pp.  
 CODEN: FRXXBL  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2854892	A1	20041119	FR 2003-5673	20030512
FR 2854892	B1	20050624		
WO 2004101498	A2	20041125	WO 2004-FR1110	20040507
WO 2004101498	A3	20050127		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,				

SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
SN, TD, TG

EP 1622863 A2 20060208 EP 2004-742669 20040507  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK

PRIORITY APPLN. INFO.: FR 2003-5673 A 20030512  
WO 2004-FR1110 W 20040507

AB The process comprises at least a stage of butadiene **hydrocyanation**  
in the presence of a catalytic system containing an organometallic complex  
having  $\geq 1$  monodentate organophosphite ligand and  $\geq 1$   
bidentate organophosphorus ligand and optional promoter such as  
**Lewis** acid, a stage of distillation to sep. and **recover** the  
catalyst. The distillation is done at a molar ratio of organo-P ligand (as P  
atom) to the number of metal atom of  $\leq 15$ , or/and at the weight concentration  
of

metal element of  $\leq 1.3\%$  and a bottom temperature of  $\leq 180^\circ$ .

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:857143 CAPLUS

DOCUMENT NUMBER: 141:333949

TITLE: Preparation of a nickel/phosphorous ligand catalyst

INVENTOR(S): Jackson, Scott Christopher; McKinney, Ronald J.

PATENT ASSIGNEE(S): Invista North America S.A.R.L., USA

SOURCE: U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004204312	A1	20041014	US 2003-409482	20030408
US 6844289	B2	20050118		
WO 2004091780	A1	20041028	WO 2004-US10472	20040406
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1610894	A1	20060104	EP 2004-759127	20040406
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR			
PRIORITY APPLN. INFO.:			US 2003-409482	A 20030408
			WO 2004-US10472	W 20040406

OTHER SOURCE(S): MARPAT 141:333949

AB Preparing a Ni/ligand catalyst, useful in **hydrocyanation** reactions,  
comprises steps in which a crude ligand mixture is contacted with  $\geq 1$   
member selected from (i) a weakly acidic organic resin, (ii) a weakly basic  
organic resin, (iii) a high-surface-area organic resin, (iv) activated C, (v)  
aluminosilicate zeolite, (vi) a 2 phase solvent system for liquid-liquid  
extraction

and (vii) a **Lewis acid**, **recovering** a solution containing a ligand (R1O)2POZOP(OR1)2; and contacting the solution with Ni chloride in the presence of a nitrile solvent and a reducing metal which is more electropos. than Ni.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:650981 CAPLUS  
DOCUMENT NUMBER: 141:175854  
TITLE: Process for manufacture of dinitrile compounds  
INVENTOR(S): Kabir, Hocine; Marion, Philippe; Rosier, Cecile  
PATENT ASSIGNEE(S): Rhodia Polyamide Intermediates, Fr.  
SOURCE: Fr. Demande, 17 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2850966	A1	20040813	FR 2003-1529	20030210
FR 2850966	B1	20050318		
WO 2004080924	A2	20040923	WO 2004-FR143	20040122
WO 2004080924	A3	20041028		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZL, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1592659	A2	20051109	EP 2004-704260	20040122
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			FR 2003-1529	A 20030210
			WO 2004-FR143	W 20040122

AB Dinitriles are manufactured by **hydrocyanation** of compds. having a nitrile group and an ethylenic unsatn. in the presence of a catalytic system based on an organometallic complex and a cocatalyst of a **Lewis acid**. The **Lewis acid** is **recovered** for **recycling** by treatment of the reaction medium with a solvent to extract the organometallic complex and treatment of the resulting reaction medium with an ion exchange resin to extract the metal ions of the cocatalysts. The dinitriles are **recovered** from the reaction medium before or after the treatment with the ion exchange resin.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:588910 CAPLUS  
DOCUMENT NUMBER: 141:140617  
TITLE: Process for catalyst **recovery** from **hydrocyanation** product mixtures  
INVENTOR(S): Jackson, Scott C.; McKinney, Ronald J.  
PATENT ASSIGNEE(S): Invista North America S.A.R.L., USA

SOURCE: U.S. Pat. Appl. Publ., 13 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004140263	A1	20040722	US 2003-338567	20030108
US 6936171	B2	20050830		
WO 2004062765	A1	20040729	WO 2004-US375	20040107
W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ	
EP 1581323	A1	20051005	EP 2004-700629	20040107
R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK	
PRIORITY APPLN. INFO.:			US 2003-338567	A 20030108
			WO 2004-US375	W 20040107

OTHER SOURCE(S): MARPAT 141:140617

AB Disclosed herein are methods for **recovering** diphosphite-containing compds. from mixts. comprising organic mononitriles and organic dinitriles, using liquid-liquid extraction. Also disclosed are pre-treatments to enhance extractability of the diphosphite-containing compds.

L3 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:60454 CAPLUS

DOCUMENT NUMBER: 140:130117

TITLE: Method of in-process **recycling** of **Lewis acids** in production of nitriles by **hydrocyanation**

INVENTOR(S): Jungkamp, Tim; Scheidel, Jens; Luyken, Hermann; Bartsch, Michael; Baumann, Robert; Haderlein, Gerd

PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004007431	A1	20040122	WO 2003-EP7150	20030704
W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW	
RW:			GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG	
DE 10231292	A1	20040129	DE 2002-10231292	20020710
DE 10240012	A1	20040311	DE 2002-10240012	20020827
CA 2491240	AA	20040122	CA 2003-2491240	20030704
AU 2003246375	A1	20040202	AU 2003-246375	20030704

EP 1521737	A1	20050413	EP 2003-763704	20030704
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
BR 2003011982	A	20050426	BR 2003-11982	20030704
CN 1665776	A	20050907	CN 2003-816115	20030704
JP 2005538075	T2	20051215	JP 2004-520479	20030704
US 2005247624	A1	20051110	US 2004-520007	20041230
PRIORITY APPLN. INFO.:			DE 2002-10231292	A 20020710
			DE 2002-10240012	A 20020827
			WO 2003-EP7150	W 20030704

AB A **Lewis** acid is **recycled** from a nitrile-containing reaction mixture (I) obtained by **hydrocyanation** of an olefinically-unsatd. compound, the mixture having a miscibility gap with water under certain concentration, pressure and temperature conditions, the **hydrocyanation** process being carried out in the presence of a catalyst system comprising a **Lewis** acid and a complex of a phosphorus-containing compound as a ligand and a central atom suitable for the ligand. The **recycling** process comprises the steps of (a) separating the complex from the mixture (I) to obtain a mixture (II), (b) treating the mixture (II) with water at such pressure and temperature conditions that a phase

(III) with a higher proportion of water than of the nitrile and a phase (IV) with a higher proportion of the nitrile than of water are formed, the phase (III) having a higher content of the **Lewis** acid than the phase (IV), (c) mixing the phase (III) with a liquid diluent (V) which does not form an azeotrope with water and having b.p. higher than that of water under certain pressure conditions, or which forms an azeotrope with water under certain pressure conditions. The **recycling** process further comprises the steps of (d) distilling the mixture of the phase (III)

and the liquid diluent (V) under certain pressure conditions to obtain a mixture (VI) having a higher proportion of water than of the liquid diluent (V) and a mixture (VII) having a higher proportion of the diluent (V) than of water, the mixture (VII) having a higher content of the **Lewis** acid than the mixture (VI), and (e) feeding the mixture (VII) to the stage of **hydrocyanation** of an olefinically-unsatd. compound to produce a nitrile. The process can be used for **recycling** of zinc chloride in production of adipodinitrile by **hydrocyanation** of a nitrile mixture produced by **hydrocyanation** of butadiene.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:434441 CAPLUS

DOCUMENT NUMBER: 139:23492

TITLE: Unsaturated phosphorus-containing compositions and their use in **hydrocyanation**, isomerization and hydroformylation reactions

INVENTOR(S): Gagne, Michel R.; Moloy, Kenneth G.; Radu, Nora S.; Santora, Brian P.; Tam, Wilson

PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA

SOURCE: PCT Int. Appl., 71 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2003045552	A2	20030605	WO 2002-US37304	20021120
WO 2003045552	A3	20031030		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 2003144440	A1	20030731	US 2001-994135	20011126
US 6660876	B2	20031209		
CA 2468195	AA	20030605	CA 2002-2468195	20021120
AU 2002348313	A1	20030610	AU 2002-348313	20021120
EP 1448298	A2	20040825	EP 2002-782340	20021120
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK			
BR 2002014629	A	20041103	BR 2002-14629	20021120
JP 2005510547	T2	20050421	JP 2003-547046	20021120
CN 1617764	A	20050518	CN 2002-827535	20021120
US 2004054105	A1	20040318	US 2003-659205	20030910
US 6924345	B2	20050802		
PRIORITY APPLN. INFO.:			US 2001-994135	A 20011126
			WO 2002-US37304	W 20021120

OTHER SOURCE(S): MARPAT 139:23492

AB The present invention relates to ethylenically unsatd., P-containing, bidentate ligands (monomers) and polymeric derivs. thereof as well as polymeric precursors to said polymeric derivs. and methods of making the same. The present invention also relates to catalyst compns. involving a Group VIII metal in the presence of the polymeric bidentate ligands and use of such catalysts in **hydrocyanation**, isomerization, and hydroformylation reactions with the benefit of easy **recovery**. The polymeric, P-containing compns. are made by heating, in the presence of an initiator, preferably a free radical initiator, and optionally in the presence of one or more comonomers, at least one substituted phosphonylated 2,2'-dihydroxyl-1,1'-binaphthalene or at least one substituted 2,2'-dihydroxyl-1,1'-biphenylene. Thus, cooling a mixture of 2.450 g 2,2-bis(4-hydroxy-3-methylphenyl)propane, 0.865 g acryloyl chloride, 40 mL PhMe and 8 mL THF to -30°, adding 1.2 g Et3N in 15 mL PhMe, removing a quarter of the solvent in vacuo, cooling the mixture to -30°, combining with 2.266 g the phosphorodichlorodite of 2-isopropylphenol and 1.2 g Et3N in 10 mL PhMe, stirring for 1.5 h and reacting with 1.157 g 3,3',5,5'-tetramethyl-2,2'-biphenol for overnight gave an unsatd. P-containing bidentate ligand which was used in preparation of

a catalyst by mixing with Ni bis(1,5-cyclooctadiene).

L3 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:271295 CAPLUS

DOCUMENT NUMBER: 129:53922

TITLE: A microencapsulated lewis acid. A new type of polymer-supported lewis acid catalyst of wide utility in organic synthesis

AUTHOR(S): Kobayashi, Shu; Nagayama, Satoshi

CORPORATE SOURCE: Dep. Appl. Chem., Fac. Sci., Sci. Univ. Tokyo (SUT), Tokyo, 162, Japan

SOURCE: Journal of the American Chemical Society (1998), 120(12), 2985-2986

CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 129:53922  
 AB Microencapsulated scandium (III) triflate [Sc(OTf)<sub>3</sub>] is prepared and used as a **recyclable**, polymer-supported **Lewis** acid catalyst with higher activity than unencapsulated Sc(OTf)<sub>3</sub>. Polystyrene-encapsulated Sc(OTf)<sub>3</sub> was used as a catalyst for imino aldol, Mannich, aldol, and Michael reactions, in addition to Friedel-Crafts acylations, Strecker reactions, cyanohydrin formation, allylation, and Diels-Alder and aza-Diels-Alder cycloaddns. Microencapsulated Sc(OTf)<sub>3</sub> can be **recycled** by filtration; the catalyst showed no loss of activity upon **reuse**.  
 REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1998:270039 CAPLUS  
 DOCUMENT NUMBER: 129:244686  
 TITLE: A Microencapsulated **Lewis** Acid. A New Type of Polymer-Supported **Lewis** Acid Catalyst of Wide Utility in Organic Synthesis. [Erratum to document cited in CA129:53922]  
 AUTHOR(S): Kobayashi, Shu; Nagayama, Satoshi  
 CORPORATE SOURCE: Dep. Appl. Chem., Fac. Sci., Sci. Univ. Tokyo (SUT), Tokyo, 162, Japan  
 SOURCE: Journal of the American Chemical Society (1998), 120(18), 4554  
 CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A corrected Scheme 3 is given.

L3 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1984:67539 CAPLUS  
 DOCUMENT NUMBER: 100:67539  
 TITLE: Mechanistic studies of nickel-catalyzed addition of deuterium cyanide and [<sup>13</sup>C]hydrogen cyanide to pentenenitriles  
 AUTHOR(S): Druliner, J. D.  
 CORPORATE SOURCE: Cent. Res. Dev. Dep., E. I. du Pont de Nemours and Co., Wilmington, DE, 19898, USA  
 SOURCE: Organometallics (1984), 3(2), 205-8  
 CODEN: ORGND7; ISSN: 0276-7333  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The addition of DCN and H<sup>13</sup>CN to pentenenitriles using a [(p-MeC<sub>6</sub>H<sub>4</sub>O)<sub>3</sub>P]<sub>4</sub>Ni (I) catalyst and AlCl<sub>3</sub>, ZnCl<sub>2</sub>, and BPh<sub>3</sub> **Lewis** acids permits the assignment of major dinitrile product reaction paths. Patterns of D incorporation in **recovered** pentenenitriles are consistent with Ni hydride catalysis of both cis-trans and double-bond olefin isomerization reactions. <sup>1</sup>H NMR anal. shows Ni-<sup>13</sup>CN bonding in complexes containing the L<sub>3</sub>NiH<sup>13</sup>CN (L = P-containing ligands) moiety but not in analogous complexes containing the L<sub>4</sub>Ni+H<sup>13</sup>CN moiety. H/D exchange occurs via o-metalation with [(p-MeOC<sub>6</sub>H<sub>4</sub>O)<sub>3</sub>P]<sub>4</sub>Ni but not with I.

=> log h

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	38.07	38.28
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-7.50	-7.50

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LOGINID:SSPTAJRK1626

PASSWORD:

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SESSION RESUMED IN FILE 'CAPLUS' AT 17:48:10 ON 21 APR 2006  
FILE 'CAPLUS' ENTERED AT 17:48:10 ON 21 APR 2006  
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COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	38.07	38.28
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-7.50	-7.50

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(FILE 'HOME' ENTERED AT 17:07:51 ON 21 APR 2006)

FILE 'CAPLUS' ENTERED AT 17:08:14 ON 21 APR 2006

L1 968 HYDROCYANATION  
L2 82 L1 AND LEWIS  
L3 10 L2 AND (RECOVE? OR RECYCL? OR REUS?)

=> l1 and (recove? or recycl? or reus?)

630584 RECOVE?  
170682 RECYCL?  
35967 REUS?

L4 59 L1 AND (RECOVE? OR RECYCL? OR REUS?)

=> l4 not l3

L5 49 L4 NOT L3

=> d ibib abs 1-49

L5 ANSWER 1 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2005:729625 CAPLUS  
DOCUMENT NUMBER: 143:195588  
TITLE: **Recovery** of hydrogen cyanide from  
1,3-butadiene catalytic **hydrocyanation**  
reaction mixtures in the manufacture of

INVENTOR(S): 3-pentenitriles by azeotropic distillation  
Jungkamp, Tim; Polka, Hans-Martin; Baumann, Robert;  
Bartsch, Michael; Haderlein, Gerd; Luyken, Hermann;  
Scheidel, Jens

PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 24 pp.  
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005073178	A2	20050811	WO 2005-EP724	20050126
WO 2005073178	A3	20050922		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 102004004718	A1	20050818	DE 2004-102004004718	20040129
PRIORITY APPLN. INFO.:			DE 2004-102004004718A	20040129

OTHER SOURCE(S): CASREACT 143:195588

AB A method is described for separating hydrogen cyanide from mixts. containing 3-pentenitrile by means of the azeotropic distillation of hydrogen cyanide with 1,3-butadiene.

L5 ANSWER 2 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:729616 CAPLUS

DOCUMENT NUMBER: 143:195579

TITLE: Process control in a catalytic **hydrocyanation** method for the conversion of 1,3-butadiene and hydrogen cyanide into 3-pentenitrile

INVENTOR(S): Jungkamp, Tim; Baumann, Robert; Schroeder, Thorsten;  
Bartsch, Michael; Haderlein, Gerd; Luyken, Hermann;  
Scheidel, Jens

PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005073169	A1	20050811	WO 2005-EP725	20050126
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
 EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,  
 RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,  
 MR, NE, SN, TD, TG

DE 102004004672 A1 20050818 DE 2004-102004004672 20040129  
 PRIORITY APPLN. INFO.: DE 2004-102004004672A 20040129

OTHER SOURCE(S): CASREACT 143:195579

AB A method is described for the production of 3-pentenitrile by the  
**hydrocyanation** of 1,3-butadiene in the presence of at least one  
 catalyst, where the 1,3-butadiene which has not been hydrocyanated is  
 removed from the product from the **hydrocyanation** reaction and  
**recycled** into the initial **hydrocyanation** process and the  
**recycled** 1,3-butadiene is monitored (e.g., liquid-phase IR  
 spectroscopy) for hydrogen cyanide content.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:704093 CAPLUS

DOCUMENT NUMBER: 143:195540

TITLE: Improved process for **hydrocyanation** of  
 mononitriles to dinitriles

CORPORATE SOURCE: BASF AG, UK

SOURCE: Research Disclosure (2005), 494(Jun.), P605-P616 (No.  
 494005)

CODEN: RSDSBB; ISSN: 0374-4353

PUBLISHER: Kenneth Mason Publications Ltd.

DOCUMENT TYPE: Journal; Patent

LANGUAGE: German

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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RD 494005		20050610		
PRIORITY APPLN. INFO.:			RD 2005-494005	20050610

OTHER SOURCE(S): CASREACT 143:195540

AB In this invention, a continuous process for preparation of dinitriles by  
**hydrocyanation** of mononitriles in presence of a homogeneously  
 distributed catalyst is claimed where the catalyst is **recycled**  
 via hydrocarbon extraction of the reaction mixture, evaporation of the  
 hydrocarbon  
 solvent, and re-transferring of the catalyst-enriched phase into the  
 reaction mixture or to catalyst regeneration. In this process the following  
 materials are used: Ni0-complexes with P-containing ligands are used as  
 catalysts where the ligands are chelate phosphites or phosphonites (or  
 mixts. thereof), 3-pentenitrile and HCN are used as reactants (main  
 product is adipodinitrile), hydrocarbon solvents are composed of  
 cyclohexane, methylcyclohexane, n-heptane, or n-octane. Process  
 conditions and variety of applicable ligands are explained in detail and  
 exemplified.

L5 ANSWER 4 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:695260 CAPLUS

DOCUMENT NUMBER: 143:172986

TITLE: Preparation and catalytic activity of inorganic porous  
 or mesoporous solids modified by transition metal  
 chelates

INVENTOR(S): Goettmann, Frederic; Lefevre, Didier; Sanchez,  
 Clement; Mathey, Francois

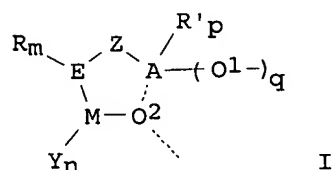
PATENT ASSIGNEE(S): Saint Gobain Recherche S.A., Fr.  
 SOURCE: Fr. Demande, 40 pp.  
 CODEN: FRXXBL  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2865664	A1	20050805	FR 2004-50208	20040204
WO 2005075074	A1	20050818	WO 2005-FR50064	20050202

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: FR 2004-50208 A 20040204  
 GI



AB Inorg. solids modified on the surface by transition metal chelates, characterized by structure I (variables defined below), their method of preparation and their catalytic activity are claimed. For I: the curved line symbolizes surface of the aforesaid solid ready to be modified; M = transition metal; Y = ligand; n = 0 or an integer such that the coordination of M is satisfied; and, if n ≥ 2, Y can be identical or different, and two Y may be joined together with their ends coordinated to M; E = heteroatom; R is an organic radical being able to be bonded to Z; m = 0 or an integer such that the valence of E is satisfied, and, if m ≥ 2, R can be identical or different; A = Si, P or C; R' = organic radical; p = 0 or integer such that the valence of A is satisfied; Z = organic connector between E and A; O1 = O atom directly bonded to the surface of the solid; q = integer ≥ 1; O2 is an O atom bonded to the metal M and either with A, or on the surface of the solid, or with both.

3,4-Dimethyl-2,5-diphenyl-6-(triethoxysilyl)-1-phosphabicyclo[2.2.1]hepta-2,5-diene was prepared, reacted with 3 mesoporous silicas and complexed with [Rh(cod)2]PF6 to give materials that in 1 case exhibited a TOF = 48, TON >100,000 in catalytic hydrogenation of 1-hexene and can easily be recycled; a homogeneous reference catalyst had TOF = 7 and TON = 1000. If a previously described mineral fiber coated with SiO2 is used in place of the mesoporous silicas, the catalytic activity for hydrogenation of 1-hexene is even greater and the recycling is easier. If the above modified silica is reacted with (EtO)3Si(CH2)3NH2 and the resulting material is reacted with [Rh(cod)2]PF6, the same Rh-bound silica catalyzes

the Knoevenagel condensation of benzaldehyde with Et cyanoacetate and hydrogenation of the resulting Et 2-cyano-3-phenylacrylate to give 85% Et 2-cyano-3-phenylpropanoate; results were poorer when the amine was free or not on the same support as the Rh.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:77720 CAPLUS  
DOCUMENT NUMBER: 142:137086  
TITLE: Procedure for fabrication and separation of dinitrile compounds  
INVENTOR(S): Amoros, Daniel; Leconte, Philippe; Gerber, Jerome  
PATENT ASSIGNEE(S): Rhodia Polyamide Intermediates, Fr.  
SOURCE: Fr. Demande, 12 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2857965	A1	20050128	FR 2003-9152	20030725
FR 2857965	B1	20050826		
WO 2005019160	A1	20050303	WO 2004-FR1972	20040723
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW,			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.: FR 2003-9152 A 20030725

OTHER SOURCE(S): MARPAT 142:137086

AB Dinitriles are separated from the reaction mixts. from **hydrocyanation** of mononitriles by feeding the reaction mixts. into a fractionation column, **recovering** the purified dinitriles as an intermediate fraction, eliminating the high-mol.-weight products as the column tailings, and **recovering** the unreacted mononitriles as the column head fraction. This process minimizes the formation of byproducts.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1141809 CAPLUS  
DOCUMENT NUMBER: 142:238693  
TITLE: Cross-Linked Aggregates of (R)-Oxynitrilase: A Stable, **Recyclable** Biocatalyst for Enantioselective **Hydrocyanation**  
AUTHOR(S): Van Langen, Luuk M.; Selassa, Rhoderick P.; Van Rantwijk, Fred; Sheldon, Roger A.  
CORPORATE SOURCE: Laboratory of Biocatalysis and Organic Chemistry, Delft University of Technology, Delft, 2628 BL, Neth.  
SOURCE: Organic Letters (2005), 7(2), 327-329  
CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 142:238693

AB The (R)-oxynitrilase from almonds was immobilized as a cross-linked enzyme aggregate (CLEA) via precipitation with 1,2-dimethoxyethane and subsequent crosslinking using glutaraldehyde. The resulting preparation was a highly effective **hydrocyanation** catalyst under microaq. conditions, which suppress the nonenzymic background reaction. The beneficial effect of these latter conditions on the **hydrocyanation** of slow-reacting aldehydes is demonstrated. The oxynitrilase CLEA was **recycled** 10 times without loss of activity.

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:992726 CAPLUS  
DOCUMENT NUMBER: 141:425572  
TITLE: Process for production of dinitriles by **hydrocyanation** of unsaturated nitriles  
INVENTOR(S): Bourgeois, Damien; Rosier, Cecile; Leconte, Philippe  
PATENT ASSIGNEE(S): Rhodia Polyamide Intermediates, Fr.  
SOURCE: Fr. Demande, 18 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2854891	A1	20041119	FR 2003-5672	20030512
WO 2004101497	A2	20041125	WO 2004-FR1108	20040507
WO 2004101497	A3	20050421		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, VZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1633700	A2	20060315	EP 2004-742667	20040507
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK			
PRIORITY APPLN. INFO.:			FR 2003-5672	A 20030512
			WO 2004-FR1108	W 20040507

AB The process comprises a stage of **hydrocyanation** of unsatd. nitriles in the presence of a catalyst based on a metal having zero oxidation state and organo-P ligands, and a stage of catalyst **recovery** by distillation in which the concentration of unsatd. nitriles is controlled to ≤20% and by decantation to sep. an upper phase containing mostly dinitriles from a lower phase containing mostly catalyst.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN



ACCESSION NUMBER: 2004:831396 CAPLUS  
 DOCUMENT NUMBER: 142:23075  
 TITLE: Enantioselective addition of trimethylsilyl cyanide to aldehydes catalyzed by bifunctional BINOLAM-AlCl versus monofunctional BINOL-AlCl complexes  
 AUTHOR(S): Casas, Jesus; Najera, Carmen; Sansano, Jose M.; Saa, Jose M.  
 CORPORATE SOURCE: Departamento de Quimica Organica and Instituto de Sintesis Organica, Universidad de Alicante, Alicante, 03080, Spain  
 SOURCE: Tetrahedron (2004), 60(46), 10487-10496  
 CODEN: TETRAB; ISSN: 0040-4020  
 PUBLISHER: Elsevier B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 142:23075  
 AB A highly enantioselective cyanation of aldehydes takes place by using a bifunctional catalyst derived from 3,3'-bis(diethylaminomethyl) substituted binaphthol (BINOLAM) and dimethylaluminium chloride. The addition is of wide scope and runs best in toluene at temps. ranging from -20 to -40°, in the presence of 4Å MS and triphenylphosphine oxide as additives. The (R)- or (S)-cyanohydrins result when using (S)- or (R)-BINOLAM-AlCl complexes, resp. The valuable ligand can be **recovered** by simple extractive work-up and **recycled** without loss of efficiency (both in terms of chemical and stereochem. yields). This methodol. is applied to the Shibasaki synthesis of epothilone A. All the evidence available for the BINOLAM-AlCl enantioselective addition of TMSCN to aldehydes call for the intervention of a **hydrocyanation** reaction, addition of a catalytic amount of hydrogen cyanide, generated in situ, to an aldehyde, followed by O-silylation. In order to determine the role of the basic amino groups of BINOLAM, comparative studies are carried out with the monofunctional 1,1'-binaphthol-derived complex BINOL-AlCl. Thus, (S)-BINOL-AlCl catalyzed cyanation of PhCHO followed by hydrolysis gave 99% (R)-mandelonitrile.  
 REFERENCE COUNT: 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:632317 CAPLUS  
 TITLE: Adiponitrile synthesis in room temperature ionic liquids  
 AUTHOR(S): Vallee, Christophe; Chauvin, Yves; Galland, Jean-Christophe; Niccolai, Gerald; Basset, Jean-Marie  
 CORPORATE SOURCE: Laboratoire de Chimie Organometallique de Surface, CPE Lyon, 69616 Villeurbanne Cedex, Fr.  
 SOURCE: Abstracts of Papers, 226th ACS National Meeting, New York, NY, United States, September 7-11, 2003 (2003), IEC-008. American Chemical Society: Washington, D. C.  
 CODEN: 69EKY9  
 DOCUMENT TYPE: Conference; Meeting Abstract  
 LANGUAGE: English  
 AB Adiponitrile is a key intermediate for nylon 6-6 and nylon 6 productions and is industrially prepared by **hydrocyanation** of butadiene with homogeneous phosphite-nickel catalysts. Previous attempts to use phosphane-nickel catalysts under biphasic conditions with water as the catalyst co-phase solvent are well-documented in the patent literature. Room temperature ionic liqs. have proven to be excellent new green media for a wide variety of catalytic organic reactions under homogeneous and biphasic conditions. The effect of several ionic liqs. on this reaction was investigated with neutral and ionic ligands. The immobilization of the

catalyst and the possibility to **recycle** the catalyst phase will be discussed.

L5 ANSWER 10 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:927303 CAPLUS  
 DOCUMENT NUMBER: 138:26344  
 TITLE: Solubilization and **recovery** of fluorinated compounds by adding and performing reactions with solvents and near-supercritical carbon dioxide  
 INVENTOR(S): Eckert, Charles A.; Jessop, Philip G.; Liotta, Charles L.  
 PATENT ASSIGNEE(S): The Regents of the University of California, USA; Georgia Tech Research Corporation  
 SOURCE: PCT Int. Appl., 36 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002096550	A1	20021205	WO 2002-US17110	20020530
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
US 2005015936	A1	20050127	US 2004-479436	20040723
PRIORITY APPLN. INFO.:			US 2001-294909P	P 20010530
			WO 2002-US17110	W 20020530

AB A process for treating solns. containing fluorine-containing compds.

(especially for enhancing catalytic reactions or **recovering** fluorine-containing catalysts) in an organic (non-halogenated) solvent consists of applying a pressure of carbon dioxide gas (i.e., at 40-90 bars) to the solvent such that the solubility of the fluorine-containing compound is increased, and then reducing the pressure of the CO<sub>2</sub> to effect a decrease in solubility, thus precipitating out the fluorine-containing compound Applications of this method are: (1) enhancing the solubility of the compound in a solvent, (2) recrystg. and **recovering** a fluorine-containing compound from the solvent, (3) precipitating a fluorine compound from the solvent onto a support (such as a fluorinated silica gel), and (4) conducting a reaction using the fluorine-containing compound (e.g., as a catalyst) in the solvent. Suitable fluorine-containing compds. are typically an organometallic complex of a main group metal, a main group semimetal, a transition metal, and an actinide or lanthanide metal, that contains highly fluorinated ligands. Suitable reactions that can be enhanced in solution include hydrogenation, hydroboration, hydroformylation, cyclopropanation, C-H insertion reactions, oxidation, hydroxylation, isomerization, coupling reaction, olefin metathesis, polymerization, hydrosilylation, **hydrocyanation**, epoxidn., or a Diels-Alder reaction.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:693174 CAPLUS  
 DOCUMENT NUMBER: 135:244060  
 TITLE: Improved separation processes of catalyst residues  
 from formyl ester products  
 INVENTOR(S): Argyropoulos, John Nicholas; Kanel, Jeffrey Scott;  
 Tulchinsky, Michael Leo; Miller, David James;  
 Morrison, Donald Lee; Foley, Paul; Bryant, David  
 Robert  
 PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology  
 Corporation, USA  
 SOURCE: PCT Int. Appl., 84 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001068252	A2	20010920	WO 2001-US8181	20010314
WO 2001068252	A3	20030904		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6303830	B1	20011016	US 2000-526638	20000315
CA 2402140	AA	20010920	CA 2001-2402140	20010314
EP 1360002	A2	20031112	EP 2001-916655	20010314
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2004502646	T2	20040129	JP 2001-566802	20010314
BR 2001009217	A	20040330	BR 2001-9217	20010314
CN 1529685	A	20040915	CN 2001-808260	20010314
NO 2002004357	A	20021025	NO 2002-4357	20020912
PRIORITY APPLN. INFO.:			US 2000-526638	A 20000315
			WO 2001-US8181	W 20010314

OTHER SOURCE(S): MARPAT 135:244060

AB A continuously generated reaction product fluid comprising  $\geq 1$  unreacted reactants, a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand,  $\geq 1$  organophosphorus ligand degradation products,  $\geq 1$  reaction byproducts,  $\geq 1$  formyl products,  $\geq 1$  nonpolar solvents, and  $\geq 1$  polar solvents undergoes phase separation, where (i) the selectivity of the polar phase for the organophosphorus ligand with respect to the  $\geq 1$  products is expressed by a partition coefficient ratio, Ef1, .gtorsim.2.5, (ii) the selectivity of the polar phase for the organophosphorus ligand with respect to the  $\geq 1$  organophosphorus ligand degradation products is expressed by a second partition coefficient ratio, Ef2, .gtorsim.2.5, and (iii) the selectivity of the polar phase for the organophosphorus ligand with respect to the  $\geq 1$  reaction byproducts is expressed by a third partition coefficient ratio, Ef3, .gtorsim.2.5 (no data).

L5 ANSWER 12 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:693173 CAPLUS  
 DOCUMENT NUMBER: 135:244059  
 TITLE: Improved separation processes of catalyst residues from products  
 INVENTOR(S): Kanel, Jeffrey Scott; Argyropoulos, John Nicholas; Phillips, Ailene Gardner; Roesch, Brian Michael; Briggs, John Robert; Lee, Min Max; Maher, John Michael; Bryant, David Robert  
 PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corporation, USA  
 SOURCE: PCT Int. Appl., 64 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001068251	A2	20010920	WO 2001-US8180	20010314
WO 2001068251	A3	20020131		
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 6303829	B1	20011016	US 2000-526434	20000315
PRIORITY APPLN. INFO.:			US 2000-526434	A 20000315
OTHER SOURCE(S):	MARPAT 135:244059			

AB This invention relates to metal-organophosphorus ligand complex catalyzed process in which the desired product, along with any organophosphorus ligand degradation products and reaction byproducts are selectively extracted and separated from the reaction product fluid by fractional countercurrent extraction  
 The process for separating  $\geq 1$  products from a reaction product fluid comprising a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand,  $\geq 1$  nonpolar reaction solvents and  $\geq 1$  polar reaction solvents, comprises (1) subjecting the reaction product fluid to fractional countercurrent extraction with at least two immiscible extraction solvents comprising  $\geq 1$  nonpolar extraction solvent and  $\geq 1$  polar extraction solvent, to obtain a nonpolar phase and (2) **recovering** the polar phase from nonpolar phase wherein (i) the organophosphorus ligand has a partition coefficient  $K_{p1}$  defined between the nonpolar phase and the polar phase of greater than about 5, and (ii)  $\geq 1$  products have a partition coefficient  $K_{p2}$  defined herein between the nonpolar phase and the polar phase of less than about 2.0 (no data).

L5 ANSWER 13 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:693172 CAPLUS  
 DOCUMENT NUMBER: 135:244058  
 TITLE: Improved separation processes of catalyst residues from products  
 INVENTOR(S): Argyropoulos, John Nicholas; Kanel, Jeffrey Scott; Tulchinsky, Michael Leo; Miller, David James; Morrison, Donald Lee; Foley, Paul; Bryant, David

Robert; Phillips, Ailene Gardner; Roesch, Brian  
Michael; Briggs, John Robert; Lee, Max Min; Maher,  
John Michael  
PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology  
Corporation, USA  
SOURCE: PCT Int. Appl., 81 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001068250	A2	20010920	WO 2001-US8173	20010314
WO 2001068250	A3	20020131		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6307110	B1	20011023	US 2000-526337	20000315
CA 2403091	AA	20010920	CA 2001-2403091	20010314
BR 2001009216	A	20021203	BR 2001-9216	20010314
EP 1265830	A2	20021218	EP 2001-918667	20010314
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003526690	T2	20030909	JP 2001-566800	20010314
RU 2261760	C2	20051010	RU 2002-127590	20010314
NO 2002004359	A	20021113	NO 2002-4359	20020912
PRIORITY APPLN. INFO.:			US 2000-526337	A 20000315
			WO 2001-US8173	W 20010314

OTHER SOURCE(S): MARPAT 135:244058

AB A continuously generated reaction product fluid comprising  $\geq 1$  unreacted reactants, a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand,  $\geq 1$  organophosphorus ligand degradation products,  $\geq 1$  reaction byproducts,  $\geq 1$  cyclic products,  $\geq 1$  nonpolar solvents, and  $\geq 1$  polar solvents undergoes phase separation, where (i) the selectivity of the nonpolar phase for the organophosphorus ligand with respect to the  $\geq 1$  products is expressed by a partition coefficient ratio, Ef1, .gtorsim.2.5, (ii) the selectivity of the nonpolar phase for the organophosphorus ligand with respect to the  $\geq 1$  organophosphorus ligand degradation products is expressed by a second partition coefficient ratio, Ef2, .gtorsim.2.5, and (iii) the selectivity of the nonpolar phase for the organophosphorus ligand with respect to the  $\geq 1$  reaction byproducts is expressed by a third partition coefficient ratio, Ef3, .gtorsim.2.5 (no data).

L5 ANSWER 14 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:693171 CAPLUS

DOCUMENT NUMBER: 135:244057

TITLE: Improved separation processes of catalyst residues from products

INVENTOR(S): Argyropoulos, John Nicholas; Kanel, Jeffrey Scott; Tulchinsky, Michael Leo; Miller, David James; Morrison, Donald Lee; Foley, Paul; Bryant, David Robert; Phillips, Ailene Gardner; Roesch, Brian

Michael; Briggs, John Robert; Lee, May Min; Maher, John Michael  
 PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corporation, USA  
 SOURCE: PCT Int. Appl., 81 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001068249	A2	20010920	WO 2001-US8156	20010314
WO 2001068249	A3	20020328		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6310260	B1	20011030	US 2000-526191	20000315
CA 2403088	AA	20010920	CA 2001-2403088	20010314
EP 1265831	A2	20021218	EP 2001-922386	20010314
EP 1265831	B1	20051228		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
BR 2001009223	A	20030408	BR 2001-9223	20010314
JP 2003526689	T2	20030909	JP 2001-566799	20010314
RU 2257370	C2	20050727	RU 2002-127592	20010314
AT 314335	E	20060115	AT 2001-922386	20010314
NO 2002004358	A	20021113	NO 2002-4358	20020912
PRIORITY APPLN. INFO.:			US 2000-526191	A 20000315
			WO 2001-US8156	W 20010314

OTHER SOURCE(S): MARPAT 135:244057

AB A continuously generated reaction product fluid comprising  $\geq 1$  unreacted reactants, a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand,  $\geq 1$  organophosphorus ligand degradation products,  $\geq 1$  reaction byproducts,  $\geq 1$  cyclic products,  $\geq 1$  nonpolar solvents, and  $\geq 1$  polar solvents undergoes phase separation, where (i) the selectivity of the polar phase for the organophosphorus ligand with respect to the  $\geq 1$  products is expressed by a partition coefficient ratio, Ef1, .gtorsim.2.5, (ii) the selectivity of the polar phase for the organophosphorus ligand with respect to the  $\geq 1$  organophosphorus ligand degradation products is expressed by a second partition coefficient ratio, Ef2, .gtorsim.2.5, and (iii) the selectivity of the polar phase for the organophosphorus ligand with respect to the  $\geq 1$  reaction byproducts is expressed by a third partition coefficient ratio, Ef3, .gtorsim.2.5 (no data).

L5 ANSWER 15 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:693170 CAPLUS

DOCUMENT NUMBER: 135:244056

TITLE: Improved separation processes of catalyst residues from products

INVENTOR(S): Kanel, Jeffrey Scott; Argyropoulos, John Nicholas; Phillips, Ailene Gardner; Roesch, Brian Michael; Briggs, John Robert; Lee, Min Max; Maher, John

Michael; Bryant, David Robert  
 PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corporation, USA  
 SOURCE: PCT Int. Appl., 64 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001068248	A2	20010920	WO 2001-US40287	20010314
WO 2001068248	A3	20020131		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG US 6294700 B1 20010925 US 2000-526636 20000315 PRIORITY APPLN. INFO.: US 2000-526636 A 20000315				

OTHER SOURCE(S): MARPAT 135:244056

AB This invention relates to metal-organophosphorus ligand complex catalyzed process in which the desired product , along with any organophosphorus ligand degradation products and reaction byproducts are selectively extracted and separated from the reaction product fluid by fractional countercurrent extraction

The process for separating  $\geq 1$  products from a reaction product fluid comprising a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand,  $\geq 1$  nonpolar reaction solvents and  $\geq 1$  polar reaction solvents, comprises (1) subjecting the reaction product fluid to fractional countercurrent extraction with at least two immiscible extraction solvents comprising  $\geq 1$  nonpolar extraction solvent and  $\geq 1$  polar extraction solvent, to obtain a nonpolar phase and (2) recovering the polar phase from nonpolar phase wherein (i) the organophosphorus ligand has a partition coefficient  $K_{p1}$  defined between the nonpolar phase and the polar phase of greater than about 5, and (ii)  $\geq 1$  products have a partition coefficient  $K_{p2}$  defined herein between the nonpolar phase and the polar phase of less than about 2.0 (no data).

L5 ANSWER 16 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2001:693169 CAPLUS  
 DOCUMENT NUMBER: 135:244055  
 TITLE: Improved separation processes  
 INVENTOR(S): Kanel, Jeffrey Scott; Bryant, David Robert; Roesch, Brian Michael; Phillips, Ailene Gardner  
 PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corp., USA  
 SOURCE: PCT Int. Appl., 72 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001068247	A2	20010920	WO 2001-US40286	20010314
WO 2001068247	A3	20020307		
WO 2001068247	C1	20040624		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6307109	B1	20011023	US 2000-526039	20000315
CA 2402892	AA	20010920	CA 2001-2402892	20010314
EP 1265832	A2	20021218	EP 2001-927398	20010314
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003526688	T2	20030909	JP 2001-566797	20010314
BR 2001009195	A	20040706	BR 2001-9195	20010314
PRIORITY APPLN. INFO.:			US 2000-526039	A 20000315
			WO 2001-US40286	W 20010314

OTHER SOURCE(S): MARPAT 135:244055

AB This invention relates to metal-organophosphorus ligand complex catalyzed process in which the desired product , along with any organophosphorus ligand degradation products and reaction byproducts are selectively extracted and

separated from the reaction product fluid by phase separation The process for separating  $\geq 1$  products from a reaction product fluid comprising a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand,  $\geq 1$  products,  $\geq 1$  nonpolar reaction solvents,  $\geq 1$  polar reaction solvents comprises (1) supplying the reaction product fluid from a reaction zone to a separation zone, (2) controlling concentration of  $\geq 1$  nonpolar reaction solvents and  $\geq 1$  polar reaction solvents, temperature and pressure in separation zone sufficient to

obtain phase separation of two immiscible liquid phases and (3) recovering polar phase from nonpolar phase or nonpolar phase from polar phase.

L5 ANSWER 17 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:507668 CAPLUS

DOCUMENT NUMBER: 135:94277

TITLE: Method for the hydrocyanation of unsaturated organic compounds

INVENTOR(S): Burattin, Paolo

PATENT ASSIGNEE(S): Rhodia Polyamide Intermediates, Fr.

SOURCE: PCT Int. Appl., 18 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001049655	A1	20010712	WO 2000-FR3695	20001227
W: AU, BR, BY, CA, CN, CZ, ID, IL, IN, JP, KR, MX, PL, RO, RU, SG, SK, UA, US, VN, ZA				



RW: BE, DE, ES, FR, GB, IT, NL, TR  
 FR 2803294 A1 20010706 FR 1999-16714 19991230  
 FR 2803294 B1 20020215  
 EP 1250312 A1 20021023 EP 2000-993711 20001227  
 R: BE, DE, ES, FR, GB, IT, NL, TR  
 PRIORITY APPLN. INFO.: FR 1999-16714 A 19991230  
 WO 2000-FR3695 W 20001227

OTHER SOURCE(S): MARPAT 135:94277

AB The invention relates to a method for the **hydrocyanation** of unsatd. organic compds., such as olefins or unsatd. organic compds. comprising

a nitrile function, for producing mono or polynitrile organic compds. In particular, the invention relates to a method for the **hydrocyanation** of a hydrocarbon compound, comprising at least one ethylenic or acetylenic unsatn. by reaction with the hydrogen cyanide in a liquid medium and in the presence of a catalyst. According to the invention, said catalyst comprises a transition metal that is associated with an organophosphorus ligand comprising fluorine atoms. The catalyst can also be at least partially extracted from the reaction medium by a liquid solvent in which the hydrocarbon and hydrocyanated compds. formed by the reaction are not soluble

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 18 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:78339 CAPLUS  
 DOCUMENT NUMBER: 134:149279  
 TITLE: Improved metal-ligand complex catalyzed processes  
 INVENTOR(S): Argyrolpoulos, John Nicholas; Bryant, David Robert; Tulchinsky, Michael Leo; Kanel, Jeffrey Scott; Foley, Paul; Fish, Barry Brent  
 PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corporation, USA  
 SOURCE: PCT Int. Appl., 63 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001007382	A2	20010201	WO 2000-US20251	20000726
WO 2001007382	A3	20020214		
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 6252121	B1	20010626	US 1999-361907	19990727
CA 2380124	AA	20010201	CA 2000-2380124	20000726
EP 1204623	A2	20020515	EP 2000-957253	20000726
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL			
JP 2003505438	T2	20030212	JP 2001-512472	20000726
BR 2000013058	A	20030715	BR 2000-13058	20000726
NO 2002000378	A	20020214	NO 2002-378	20020124

PRIORITY APPLN. INFO.:

US 1999-361907  
WO 2000-US20251A 19990727  
W 20000726

OTHER SOURCE(S): MARPAT 134:149279

AB This invention relates to a process for separating one or more cyclic products such as cyclic aldehydes from a reaction product fluid comprising one or more cyclic reactants, a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand, a non-polar solvent and said one or more cyclic products, wherein said process comprises: (1) reacting said one or more cyclic reactants in the presence of said metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand and non-polar solvent to form a multiphase reaction product fluid; and (2) separating said multiphase reaction product fluid to obtain a non-polar phase comprising said one or more cyclic reactants, metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand and non-polar solvent and a polar phase comprising said one or more cyclic products. This process provides for preventing and/or lessening the degradation of the catalyst during the separation

L5 ANSWER 19 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:441764 CAPLUS

DOCUMENT NUMBER: 133:60377

TITLE: **Hydrocyanation** method for ethylenically unsaturated organic compounds

INVENTOR(S): Burattin, Paolo; Coqueret, Pierre; Huser, Marc

PATENT ASSIGNEE(S): Rhodia Fiber and Resin Intermediates, Fr.

SOURCE: PCT Int. Appl., 26 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000037431	A1	20000629	WO 1999-FR3231	19991221
W: BR, CA, CN, CZ, JP, KR, MX, PL, RO, RU, SG, SK, UA, US, VN, ZA				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
FR 2787446	A1	20000623	FR 1998-16468	19981222
FR 2787446	B1	20010202		
CA 2356381	AA	20000629	CA 1999-2356381	19991221
BR 9916437	A	20010904	BR 1999-16437	19991221
EP 1140801	A1	20011010	EP 1999-959509	19991221
EP 1140801	B1	20050223		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002533321	T2	20021008	JP 2000-589503	19991221
AT 289585	E	20050315	AT 1999-959509	19991221
TW 453985	B	20010911	TW 1999-88122537	19991223
US 2002022736	A1	20020221	US 2001-886288	20010622
US 6469194	B2	20021022		
ZA 2001005887	A	20021017	ZA 2001-5887	20010717
PRIORITY APPLN. INFO.:				
			FR 1998-16468	A 19981222
			WO 1999-FR3231	W 19991221

AB The invention concerns a **hydrocyanation** method for ethylenically unsatd. organic compds. in particular to obtain nitriles, and more particularly **hydrocyanation** of substituted diolefins or of olefins for producing dinitriles, and/or the isomerization of nitriles obtained by **hydrocyanation**. The invention more particularly concerns **hydrocyanation** catalyzed by a nickel-based compound The

catalyst used in said production method is treated in output with hydrogen cyanide to **recover** and redissolve the nickel precipitated in the form of nickel hydroxide. The method enables to regenerate and prolong the life span of a catalyst charge. Moreover, it enables to reduce pollution in the installations using said method.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 20 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:126033 CAPLUS

DOCUMENT NUMBER: 132:347858

TITLE: Enantioselective catalytic addition of HCN to ketoimines. Catalytic synthesis of quaternary amino acids

AUTHOR(S): Vachal, Petr; Jacobsen, Eric N.

CORPORATE SOURCE: Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA, 02138, USA

SOURCE: Organic Letters (2000), 2(6), 867-870

CODEN: ORLEF7; ISSN: 1523-7060

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 132:347858

AB Highly enantioselective addition of HCN to ketoimines has been achieved for the first time using readily accessible and **recyclable** Schiff base catalysts. Essentially quant. isolated yield and enantioselectivity of up to 95% enantiomeric excess was obtained. Furthermore, some of the Strecker adducts could be recrystd. in high **recovery**, yielding optically pure materials. Conversion of the  $\alpha$ -aminonitrile adducts to the corresponding  $\alpha$ -quaternary  $\alpha$ -amino acids was effected in high yield by a formylation/hydrolysis sequence.

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 21 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:495260 CAPLUS

DOCUMENT NUMBER: 131:131509

TITLE: Process for separation of metal-organophosphorus ligand complex catalyst from reaction fluids

INVENTOR(S): Argyropoulos, John N.; Bryant, David Robert; Morrison, Donald Lee; Stockman, Kenneth Elwood

PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corporation, USA

SOURCE: PCT Int. Appl., 73 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9938832	A1	19990805	WO 1999-US2090	19990201
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,			

CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 5952530	A	19990914	US 1998-17456	19980202
ZA 9900777	A	19990802	ZA 1999-777	19990201
CA 2319801	AA	19990805	CA 1999-2319801	19990201
AU 9923517	A1	19990816	AU 1999-23517	19990201
EP 1053219	A1	20001122	EP 1999-903511	19990201
EP 1053219	B1	20031210		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, MC, PT				
BR 9908212	A	20011030	BR 1999-8212	19990201
JP 2002501938	T2	20020122	JP 2000-530071	19990201
RU 2207332	C2	20030627	RU 2000-122844	19990201
AT 256097	E	20031215	AT 1999-903511	19990201
ES 2209390	T3	20040616	ES 1999-903511	19990201
TW 471979	B	20020111	TW 1999-88101491	19990417
PRIORITY APPLN. INFO.:			US 1998-17456	A 19980202
			WO 1999-US2090	W 19990201

OTHER SOURCE(S): MARPAT 131:131509

AB This invention relates to a process for separating one or more products from a reaction product fluid comprising a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand, a nonpolar solvent and said one or more products, wherein said process comprises (1) mixing said reaction product fluid with a polar solvent to obtain by phase separation a nonpolar phase comprising said metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand and said nonpolar solvent and a polar phase comprising said one or more products and polar solvent, and (2) **recovering** said polar phase from said nonpolar phase; wherein said organophosphorus ligand has a partition coefficient between the nonpolar solvent and the polar solvent of greater than about 5, and said one or more products have a partition coefficient between the polar solvent and the nonpolar solvent of greater than about 0.5.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 22 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:487142 CAPLUS

DOCUMENT NUMBER: 131:131504

TITLE: Separation processes for metal-organophosphorus ligand complex catalyst-based reactions

INVENTOR(S): Argyropoulos, John N.; Bryant, David Robert; Morrison, Donald Lee; Stockman, Kenneth Elwood; Abatjoglou, Anthony George

PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corporation, USA

SOURCE: U.S., 25 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 5932772	A	19990803	US 1998-17457	19980202
ZA 9900775	A	19990802	ZA 1999-775	19990201
CA 2319780	AA	19990805	CA 1999-2319780	19990201
WO 9938831	A1	19990805	WO 1999-US1998	19990201
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,				
DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP,				
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO,				
NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA,				

UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,  
 FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,  
 CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 9925692 A1 19990816 AU 1999-25692 19990201  
 EP 1053220 A1 20001122 EP 1999-905553 19990201  
 EP 1053220 B1 20050223

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT  
 BR 9908360 A 20020115 BR 1999-8360 19990201  
 JP 2002501937 T2 20020122 JP 2000-530070 19990201  
 AT 289577 E 20050315 AT 1999-905553 19990201  
 TW 455501 B 20010921 TW 1999-88101492 19990429

PRIORITY APPLN. INFO.: US 1998-17457 A 19980202  
 WO 1999-US1998 W 19990201

OTHER SOURCE(S): MARPAT 131:131504

AB This invention relates to a process for separating one or more products from a reaction product fluid comprising a metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand, a polar solvent and the products, wherein the process comprises (1) mixing the reaction product fluid with a nonpolar solvent to obtain by phase separation a polar phase comprising the metal-organophosphorus ligand complex catalyst, optionally free organophosphorus ligand and the polar solvent and a nonpolar phase comprising the one or more products and nonpolar solvent, and (2) **recovering** the nonpolar phase from the polar phase; wherein the organophosphorus ligand has a partition coefficient between the polar solvent and the nonpolar solvent of greater than about 10, and the one or more products have a partition coefficient between the nonpolar solvent and the polar solvent of greater than about 0.5.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 23 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:534864 CAPLUS

DOCUMENT NUMBER: 129:141208

TITLE: Catalyst system comprising a first catalyst system tethered to a supported catalyst

INVENTOR(S): Angelici, Robert J.; Gao, Hanrong

PATENT ASSIGNEE(S): Iowa State University Research Foundation, Inc., USA

SOURCE: U.S., 18 pp.  
 CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	----	-----	-----
US 5789333	A	19980804	US 1997-811426	19970305

PRIORITY APPLN. INFO.: US 1997-811426 19970305

AB The present invention provides new catalyst formats which comprise a supported catalyst tethered to a second and different catalyst by a suitable tethering ligand. A preferred system comprises a heterogeneous supported metal catalyst tethered to a homogeneous catalyst. This combination of homogeneous and heterogeneous catalysts has a sufficient lifetime and unusually high catalytic activity in arene hydrogenations (data given), and potentially many other reactions as well, including, but not limited to hydroformylation, hydrosilation, olefin oxidation, isomerization, **hydrocyanation**, olefin metathesis, olefin polymerization, carbonylation, enantioselective catalysis and photoduplication (only carbonylation with data- the other uses not claimed nor data given).

These catalysts are easily separated from the products, and can be reused repeatedly, making these systems very economical.

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 24 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:421097 CAPLUS

DOCUMENT NUMBER: 129:82975

TITLE: Metal-ligand complex-catalyzed processes

INVENTOR(S): Billig, Ernst; Bryant, David Robert

PATENT ASSIGNEE(S): Union Carbide Chemicals & Plastics Technology Corporation, USA

SOURCE: U.S., 28 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 25

PATENT INFORMATION:

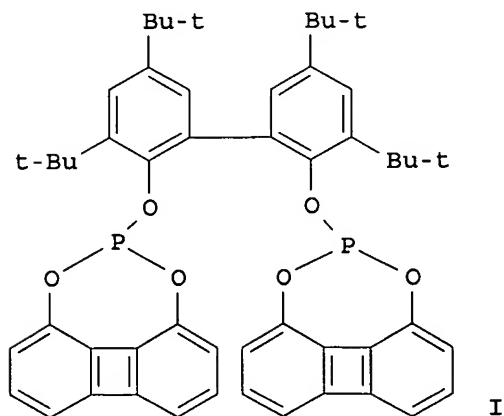
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5767321	A	19980616	US 1996-757740	19961126
CA 2239618	AA	19970612	CA 1996-2239618	19961205
AU 9711477	A1	19970627	AU 1997-11477	19961205
AU 720249	B2	20000525		
CN 1203579	A	19981230	CN 1996-198751	19961205
CN 1078580	B	20020130		
BR 9611808	A	19990217	BR 1996-11808	19961205
JP 2000501712	T2	20000215	JP 1997-521445	19961205
EP 1019352	A1	20000719	EP 1996-942907	19961205
EP 1019352	B1	20031008		

R: BE, DE, ES, FR, GB, IT, NL, SE, SI

PRIORITY APPLN. INFO.:

US 1995-8284P	P	19951206
US 1995-8286P	P	19951206
US 1995-8289P	P	19951206
US 1995-8763P	P	19951206
US 1996-757740	A	19961126
WO 1996-US19412	W	19961205

OTHER SOURCE(S): MARPAT 129:82975  
GI



AB This invention relates to a process which comprises reacting one or more reactants in the presence of a metal-organopolyphosphite ligand complex catalyst to produce a reaction product fluid comprising one or more products, wherein said process is conducted at a free organopolyphosphite ligand concentration sufficient to prevent and/or lessen hydrolytic degradation of the organopolyphosphite ligand and deactivation of the metal-organopolyphosphite ligand complex catalyst. At least a portion of the reaction product mixture is treated with a compound to remove at least some of the phosphorus acidic compds. for **recycling** of the product mixture to the reaction zone. Thus, in the hydroformylation of 1-butene-2-butene mixture with CO and H at 85° in the presence of Rh dicarbonyl acetylacetonate and ligand I, 1,2-epoxydodecane was used for acid control.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 25 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:406229 CAPLUS

DOCUMENT NUMBER: 129:82973

TITLE: Monoolefinic C5 mononitrile production and use

INVENTOR(S): Siegel, Wolfgang; Mundinger, Klaus; Meyer, Gerald; Fischer, Jakob

PATENT ASSIGNEE(S): BASF A.-G., Germany

SOURCE: Ger. Offen., 12 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19652273	A1	19980618	DE 1996-19652273	19961216
CA 2275164	AA	19980625	CA 1997-2275164	19971210
WO 9827054	A1	19980625	WO 1997-EP6900	19971210
W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HU, ID, IL, JP, KR, KZ, LT, LV, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, AM, AZ, KG, MD, TJ, TM				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9858554	A1	19980715	AU 1998-58554	19971210
EP 944585	A1	19990929	EP 1997-954375	19971210
EP 944585	B1	20020417		
R: BE, DE, ES, FR, GB, IT, NL				
CN 1245489	A	20000223	CN 1997-181702	19971210
CN 1144781	B	20040407		
BR 9713939	A	20000321	BR 1997-13939	19971210
JP 2001506250	T2	20010515	JP 1998-527270	19971210
ES 2175520	T3	20021116	ES 1997-954375	19971210
RU 2217416	C2	20031127	RU 1999-115156	19971210
TW 387874	B	20000421	TW 1997-86118914	19971215
US 6197992	B1	20010306	US 1999-319877	19990614
KR 2000057573	A	20000925	KR 1999-705329	19990615
PRIORITY APPLN. INFO.:				DE 1996-19652273 A 19961216
				WO 1997-EP6900 W 19971210

AB Non-conjugated C5 monoolefinic mononitriles are prepared economically by catalytic **hydrocyanation** of hydrocarbons containing butadiene (I) from which **hydrocyanation** poisons have been removed. The continuous reaction of a partially hydrogenated C4 fraction containing I (483 mmol/h) with HCN (414 mmol/h) in the presence of 2.76 mmol/h catalyst

containing [(MeC6H4O)3P]4Ni 25, (MeC6H4O)3P 60, and 3-pentenitrile (II)-2-methyl-3-butenitrile (III) 15% at 102-95°/15 bar with residence time 80 min gave HCN conversion >99.8%, selectivity vs. I 98%, II-III ratio 2.0:1, and active Ni **recovery** 90.0%; vs. 98.0, 97, 1.95:1, and 61.3, resp., when a non-hydrogenated C4 fraction was used.

L5 ANSWER 26 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1991:163564 CAPLUS  
 DOCUMENT NUMBER: 114:163564  
 TITLE: Preparation of adiponitrile  
 INVENTOR(S): Back, Gary L.; Batey, Harvey J.; Caton, John C.; Kump, Robin L.; O'Brien, Charles F., III; Robinson, Jacques D.  
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA  
 SOURCE: U.S., 4 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

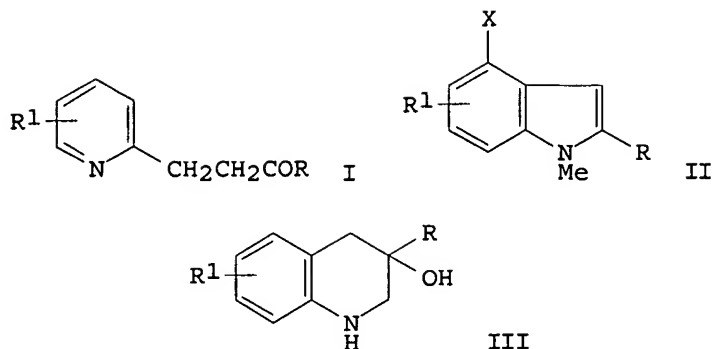
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 4990645	A	19910205	US 1990-544625	19900627
CA 2045721	AA	19911228	CA 1991-2045721	19910626
JP 04230254	A2	19920819	JP 1991-180552	19910626
JP 2818503	B2	19981030		
EP 464691	A1	19920108	EP 1991-110691	19910627
EP 464691	B1	19931215		
R: BE, DE, FR, GB, IT, NL				
KR 184879	B1	19990515	KR 1991-10751	19910627
PRIORITY APPLN. INFO.:			US 1990-544625	A 19900627

AB Claimed is a process for the preparation of adiponitrile by the **hydrocyanation** of pentenenitrile using a zero-valent nickel catalyst and a triarylborane promoter in which solid catalyst degradation precipitate fouls the reactor and related equipment and is contained in the product fluid which comprises **recycling** a portion of the solid catalyst degradation precipitate to the reactor, and controlling the HCN concentration in the product stream leaving the reactor so that the HCN concentration does not exceed about 2500 ppm.

L5 ANSWER 27 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1991:121945 CAPLUS  
 DOCUMENT NUMBER: 114:121945  
 TITLE: **Recyclization** of 2-(2-acylethyl)pyridinium salts  
 AUTHOR(S): Terenin, V. I.; Romyantsev, A. N.; Nosyrev, P. V.; Gromov, S. P.; Bundel, Yu. G.  
 CORPORATE SOURCE: Mosk. Gos. Univ., Moscow, 119899, USSR  
 SOURCE: Khimiya Geterotsiklicheskikh Soedinenii (1990), (9), 1217-25  
 CODEN: KGSSAQ; ISSN: 0453-8234  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 OTHER SOURCE(S): CASREACT 114:121945  
 GI





AB Treating 2-vinylpyridine and its 3-, 4-, 5-, and 6-Me derivs. with KCN in H<sub>2</sub>O-Ac<sub>2</sub>O gave 33-53% 2-(2-cyanoethyl)pyridines, which reacted with RMgBr (R = Ph, 2-thienyl) in absolute Et<sub>2</sub>O to give 6 corresponding 2-(2-arylethyl)pyridines I in 43-64% yield. Methylating I with MeI gave 82-95% title salts, which **recyclized** to give mixts. of the corresponding indoles II (X = H, NHMe) and/or tetrahydroquinolinols III, depending on the conditions.

L5 ANSWER 28 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1988:493799 CAPLUS

DOCUMENT NUMBER: 109:93799

TITLE: Preventing black polymerization in the production of acrylonitrile from hydrocyanic acid and acetylene  
INVENTOR(S): Schnurpfeil, Dieter; Will, Gunter; Dietze, Gerhard;

PATENT ASSIGNEE(S): Dreissig, Knut; Parthey, Manfred; Wagner, Andreas

SOURCE: VEB Chemische Werk, Ger. Dem. Rep.

Ger. (East), 5 pp.

CODEN: GEXXA8

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DD 250837	A3	19871028	DD 1985-280109	19850829
PRIORITY APPLN. INFO.:			DD 1985-280109	19850829

AB In the title process, instability blockage at apparatus, and loss of production volume are prevented by maintaining an HCN concentration <16% in the separator effluent, a gas recirculation rate of >2100 m<sup>3</sup>/h, and condenser temps. in steam and azeotropic distillation 25-40 and 48-52°, resp., and continuously **recycling** the aqueous phase at the condensates as a side stream.

L5 ANSWER 29 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:18143 CAPLUS

DOCUMENT NUMBER: 106:18143

TITLE: Chiral cyanohydration

INVENTOR(S): Dong, Walter; Friend, Peter S.

PATENT ASSIGNEE(S): Shell Oil Co., USA

SOURCE: U.S., 9 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4611076	A	19860909	US 1985-749618	19850626
EP 205782	A1	19861230	EP 1986-104615	19860404
R: BE, CH, DE, FR, GB, IT, LI, NL				
CA 1266487	A1	19900306	CA 1986-510998	19860606
JP 62004257	A2	19870110	JP 1986-145966	19860620
BR 8602922	A	19870217	BR 1986-2922	19860624
PRIORITY APPLN. INFO.:			US 1985-749618	A 19850626
OTHER SOURCE(S): MARPAT 106:18143				

AB Chiral cyanohydrins (or enantiomerically enriched mixts. thereof), useful as intermediates, e.g., for pyrethroid esters (no data), are prepared by treating an aromatic aldehyde with CN<sup>-</sup> in an inert, aprotic solvent in the presence of cyclo(D-phenylalanyl-D-histidine) (I) or cyclo(L-phenylalanyl-L-histidine) catalyst and an aralkyl alc. The **recycled** cyanohydrin itself may serve as the aralkyl alc. Thus, 3-PhOC6H4CHO (II) was converted to (S)-3-PhOC6H4CH(CN)OH (III) by addition of HCN in the presence of I in several expts. In particular, addition of 13.0% **recycled** III to a reaction gave 87% conversion of II after 1 h, 96% conversion after 6.5 h, and 95.6% S-isomer, vs. 20%, 94%, and 91%, resp., without added III. The alc. is believed to accelerate swelling of the catalyst.

L5 ANSWER 30 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1986:11162 CAPLUS  
DOCUMENT NUMBER: 104:11162  
TITLE: **Recovery** of zerovalent nickel complexes  
INVENTOR(S): Leyendecker, William R.; Rapoport, Morris  
PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co. , USA  
SOURCE: U.S., 4 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4539302	A	19850903	US 1984-605311	19840430
EP 160296	A2	19851106	EP 1985-105250	19850430
EP 160296	A3	19860102		
EP 160296	B1	19881026		
R: BE, DE, FR, GB, IT, LU, NL				
JP 60238151	A2	19851127	JP 1985-93538	19850430
JP 05016310	B4	19930304		
CA 1234135	A1	19880315	CA 1985-480418	19850430
PRIORITY APPLN. INFO.:			US 1984-605311	A 19840430
OTHER SOURCE(S): MARPAT 104:11162				

AB A process is given for **recovering** a catalyst consisting of Ni(0) and organophosphorus ligands from a dinitrile hydrocarbon product stream by controlling the level of unreacted mononitriles in the stream, causing the thus treated stream to form 2 phases; the catalyst is **recovered** from the heavier phase.

L5 ANSWER 31 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1984:598914 CAPLUS  
DOCUMENT NUMBER: 101:198914

TITLE: Recovery of catalyst from olefin  
hydrocyanation and isomerization  
INVENTOR(S): Stowe, Gerald Thomas  
PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co. , USA  
SOURCE: Eur. Pat. Appl., 13 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 114171	A1	19840801	EP 1983-100596	19830124
R: BE, DE, FR, GB, IT, LU, NL				
JP 59132944	A2	19840731	JP 1983-7490	19830121
CA 1190915	A1	19850723	CA 1983-420867	19830203
PRIORITY APPLN. INFO.:			EP 1983-100596	19830124
OTHER SOURCE(S):	MARPAT 101:198914			

AB A method for the recovery of deactivated Ni from active NiO catalyst used in the hydrocyanation of olefins and the isomerization of nitriles consists of contacting the deactivated catalyst in a solution of mostly organo-P compds. containing ≤10 weight% dinitriles and trace amts. of mononitriles with a solution of C5-9 aliphatic and/or cycloaliph. hydrocarbons to precipitate the Ni(II). Thus, a catalyst prepared as a NiO complex with TTP, PCl<sub>3</sub>, and pentenenitriles was used to hydrocyanate butadiene and its deactivated Ni(II) removed by shaking with cyclohexane.

L5 ANSWER 32 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1983:576045 CAPLUS  
DOCUMENT NUMBER: 99:176045  
TITLE: Recovery of triarylboranes  
INVENTOR(S): Reimer, Ronald Anthony; Stowe, Gerald Thomas  
PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co. , USA  
SOURCE: Ger. Offen., 15 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3247292	A1	19830630	DE 1982-3247292	19821221
US 4416824	A	19831122	US 1981-333176	19811221
CA 1181427	A1	19850122	CA 1982-417939	19821216
BE 895407	A1	19830620	BE 1982-209766	19821220
FR 2518549	A1	19830624	FR 1982-21304	19821220
NL 8204899	A	19830718	NL 1982-4899	19821220
JP 58126892	A2	19830728	JP 1982-222204	19821220
GB 2118166	A1	19831026	GB 1982-36212	19821220
GB 2118166	B2	19850717		
PRIORITY APPLN. INFO.:			US 1981-333176	A 19811221
OTHER SOURCE(S):	MARPAT 99:176045			

AB Ph3B was recovered from hydrocyanation reaction mixts. of pentenenitriles in which it was used as a promoter, in complexes with metals whose salts were used as catalysts. Hydrocyanation of 3- and 4-pentenenitrile gave a mixture of 653 parts adiponitrile (L), 155 parts pentenenitrile and 25.5 parts of a 20.2% solution of Ph3B in pentenenitrile.

The mixture was treated with 1.41 parts NaCN and 3.92 parts  $\text{NiCl}_2 \cdot 6 \text{H}_2\text{O}$  to give 85%  $\text{L}_2\text{Ni}(\text{NCBPh}_3)_2$ . Similarly prepared was  $\text{L}_2\text{Fe}(\text{NCBPh}_3)_2$ .

L5 ANSWER 33 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1983:494449 CAPLUS  
 DOCUMENT NUMBER: 99:94449  
 TITLE: Separating zero-valent nickel species from divalent nickel species  
 INVENTOR(S): Stowe, Gerald T.  
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co. , USA  
 SOURCE: U.S., 4 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4387056	A	19830607	US 1981-254780	19810416
PRIORITY APPLN. INFO.:			US 1981-254780	19810416

AB A method for efficiently separating active Ni(0) catalysts from deactivated Ni(II) catalysts for olefin **hydrocyanation** or nitrile isomerization so that the active catalyst may be **recycled** consists of contacting the organophosphorus-containing catalyst solution with an  $\geq 1$  solvent from C5-9 hydrocarbons, C1-3 halohydrocarbons, and C2-5 nitriles to precipitate the Ni(II) compound leaving the active catalyst in solution

Thus, butadiene was hydrocyanated at 110-145° by a tetrakis(tritolyolphosphite)Ni(0) catalyst dissolved in tritolyolphosphite with pentenenitriles and  $\text{PCl}_3$  and the used catalyst was separated by use of cyclohexane.

L5 ANSWER 34 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1979:121791 CAPLUS  
 DOCUMENT NUMBER: 90:121791  
 TITLE: Metal hydroxide adduct of a triarylborane  
 INVENTOR(S): Reimer, Ronald A.  
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA  
 SOURCE: U.S., 6 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4134923	A	19790116	US 1977-830043	19770902
CA 1110277	A1	19811006	CA 1978-310290	19780830
BE 870142	A1	19790301	BE 1978-190199	19780901
NL 7808980	A	19790306	NL 1978-8980	19780901
DE 2838307	A1	19790315	DE 1978-2838307	19780901
GB 2003854	A	19790321	GB 1978-35244	19780901
GB 2003854	B2	19820127		
FR 2401928	A1	19790330	FR 1978-25307	19780901
FR 2401928	B1	19830114		
JP 54046193	A2	19790411	JP 1978-106345	19780901
PRIORITY APPLN. INFO.:			US 1977-830043	A 19770902

AB The process for producing a metal hydroxide product of a triarylborane from its amine adduct comprised treatment of an aqueous mix. of the amine adduct with metal hydroxide at 60-130° and removing all amine liberated during the reaction by stripping with an inert gas. The process is preferably applied to the NH<sub>3</sub> adduct of Ph<sub>3</sub>B. The adduct is generated in treatment of a waste stream from the **hydrocyanation** process. Na is the preferred metal because the NaOH adduct is an intermediate in the production of triarylboranes which are useful as catalyst promoters. Thus, 3 g Ph<sub>3</sub>B.NH<sub>3</sub> was refluxed 5 h with 6 g NaOH and 50 mL of water while N was passed through the system at 10-20 cc/min. The Ph<sub>3</sub>B.NaOH obtained was treated with 32 mL of 6 M HCl to pH 7 to give 78.6% Ph<sub>3</sub>B.

L5 ANSWER 35 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1979:54466 CAPLUS  
 DOCUMENT NUMBER: 90:54466  
 TITLE: 1,4-Butanediol  
 INVENTOR(S): Krall, Hermann Dieter; Schwarz, Herbert  
 PATENT ASSIGNEE(S): Bayer A.-G., Fed. Rep. Ger.  
 SOURCE: Ger. Offen., 26 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2719867	A1	19781109	DE 1977-2719867	19770504
PRIORITY APPLN. INFO.:			DE 1977-2719867	A 19770504

AB HO(CH<sub>2</sub>)<sub>4</sub>OH (I) was prepared by **hydrocyanation** of CH<sub>2</sub>:CHCN, treatment of the NCCH<sub>2</sub>CH<sub>2</sub>CN with BuOH and H<sub>2</sub>SO<sub>4</sub> to give BuO<sub>2</sub>CCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>Bu, and hydrogenation of the ester to give I and BuOH, which was **recycled** to the 2nd step. BuOH and H<sub>2</sub>SO<sub>4</sub> could be replaced by other alcs. and acids.

L5 ANSWER 36 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1978:509935 CAPLUS  
 DOCUMENT NUMBER: 89:109935  
 TITLE: **Recovery** of metal and triarylborane catalyst components from olefin **hydrocyanation** residue  
 INVENTOR(S): Shook, Howard Everett, Jr.  
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA  
 SOURCE: U.S., 5 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4082811	A	19780404	US 1977-771064	19770223
CA 1102140	A1	19810602	CA 1978-297359	19780221
BE 864204	A1	19780822	BE 1978-185381	19780222
NL 7801976	A	19780825	NL 1978-1976	19780222
JP 53103975	A2	19780909	JP 1978-18619	19780222
JP 60057372	B4	19851214		
DE 2807849	A1	19780824	DE 1978-2807849	19780223
FR 2381566	A1	19780922	FR 1978-5229	19780223

FR 2381566 B1 19830902  
GB 1577996 A 19801029 GB 1978-7292 19780223  
PRIORITY APPLN. INFO.: US 1977-771064 A 19770223  
AB A process for the **recovery** of catalyst components, a Ni complex promoted by a triarylborane, from the **hydrocyanation** of olefins comprized contacting the catalyst with an aqueous solution containing at least 10 mol of a N-containing base/mol of B plus Ni while maintaining the concentration of the base at >6% to maintain the Ni in solution and precipitate the basic adduct of the triarylborane. Thus, 1 g of a catalyst residue, which by anal. contained 61.1% C, 4.9% H, 12.5% N, 8.9% Ni, and 1.85% B (35.2% Ph<sub>3</sub>B) was heated under pressure 1 h at 100° with 7 mL 50% aqueous NH<sub>4</sub>OH and filtered to give 60% Ph<sub>3</sub>B. Water was added to the filtrate to precipitate Ni(CN)<sub>2</sub>(NH<sub>3</sub>)(H<sub>2</sub>O)0.5.

L5 ANSWER 37 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1975:139429 CAPLUS  
DOCUMENT NUMBER: 82:139429  
TITLE: **Recovery** of nickel from a deactivated **hydrocyanation** catalyst  
INVENTOR(S): Wells, James R.  
PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.  
SOURCE: U.S., 3 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 3859327	A	19750107	US 1972-300825	19721025

PRIORITY APPLN. INFO.: US 1972-300825 A 19721025  
AB Deactivated **hydrocyanation** catalysts for MeCH:CHCH<sub>2</sub>CN(I) were regenerated by charging to a reactor the degraded Ni catalyst, I, an organic P compound and a finely divided reducing metal, e.g., Zn; the reaction mixture was maintained at 60-140° to regenerate the zerovalent Ni complex of the P compound. Thus, a reactor was charged with deactivated catalyst containing 13.4 weight% Ni and 5.56 weight% Zn, , P(OC<sub>6</sub>H<sub>4</sub>Me)<sub>3</sub> (mixture of meta and para isomers) and ZnCl<sub>2</sub> and stirred 2 hr at 140°; after cooling and filtering the filtrate was heated with Zn dust at 110° 2 hr and the conversion of Ni to zerovalent Ni complex was quant.

L5 ANSWER 38 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1974:551576 CAPLUS  
DOCUMENT NUMBER: 81:151576  
TITLE: Methacrylonitrile  
INVENTOR(S): Mekhtiev, S. I.; Dalin, M. A.; Polchaev, R. A.; Mamedov, R. G.  
SOURCE: Belg., 12 pp.  
CODEN: BEXXAL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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 BE 807026                      A1      19740507      BE 1973-137502                      19731107  
 PRIORITY APPLN. INFO.:                      BE 1973-137502                      A      19731107  
 AB    Ammoxidn. of 1 mole isobutene by 2 mole NH<sub>3</sub> and 2.5 mole O (in air) at  
 450-60° over a Bi-Mo-W catalyst gave CH<sub>2</sub>:CMeCN 44, MeCN 12.3, and  
 HCN 10.2 g; to the product mixture were added 22.0 g Me<sub>2</sub>CO and 1.6 g 40%  
 KOH, reaction was affected at 15-20° over 120 min to convert the  
 Me<sub>2</sub>CO-HCN to Me<sub>2</sub>C(OH)CN which, without separation, was dehydrated by  
 P<sub>2</sub>O<sub>5</sub>-quinoline at 10-25° over 15-20 min to give a final product  
 containing CH<sub>2</sub>:CMeCN 84.5 and MeCN 15.5%.

L5    ANSWER 39 OF 49    CAPLUS    COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER:                      1973:125122    CAPLUS  
 DOCUMENT NUMBER:                      78:125122  
 TITLE:                      **Recovery** of cuprous chloride from spent  
    Nieuwland catalyst  
 INVENTOR(S):                      Gusatu, Nicolae; Stanescu, Gelu; Saveliuc, Virgil  
 PATENT ASSIGNEE(S):                      Uzina, "Azur"  
 SOURCE:                      Rom., 2 pp.  
    CODEN: RUXXA3  
 DOCUMENT TYPE:                      Patent  
 LANGUAGE:                      Romanian  
 FAMILY ACC. NUM. COUNT:                      1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RO 53432		19711227	RO 1969-59510	19690327

AB    Previous methods for **recovering** the catalyst used to produce  
 acrylonitrile [107-13-1] were simplified and the copper [7440-50-8] losses  
 avoided. Na<sub>2</sub>CO<sub>3</sub> or NaOH (30% solution) was gradually added to 1000 ml spent  
 catalyst solution (50-60.deg.) to pH 4-4.5, water added to 1500 ml, the  
 polymers filtered, the filtrate diluted with 5-6 volume cold water, HCl added  
 to pH 3.5, and the copper(I) chloride [7758-89-6] crystals formed were  
 washed with 0.5% AcOH to eliminate Cl<sup>-</sup>, SO<sub>4</sub><sup>2+</sup>, Cu<sup>2+</sup>, then with concentrated  
 AcOH, and dried. CuCl was obtained with 98-99% purity and the polymerized  
 products remained Cu free.

L5    ANSWER 40 OF 49    CAPLUS    COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER:                      1972:434693    CAPLUS  
 DOCUMENT NUMBER:                      77:34693  
 TITLE:                      Separation of organic phosphorus compounds and their  
    metal complexes from organic dinitriles  
 INVENTOR(S):                      Walter, Jack W.  
 PATENT ASSIGNEE(S):                      du Pont de Nemours, E. I., and Co.  
 SOURCE:                      Ger. Offen., 23 pp.  
    CODEN: GWXXBX  
 DOCUMENT TYPE:                      Patent  
 LANGUAGE:                      German  
 FAMILY ACC. NUM. COUNT:                      1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2154501	A	19720504	DE 1971-2154501	19711102
DE 2154501	B2	19790802		
DE 2154501	C3	19800604		
CA 966146	A1	19750415	CA 1971-124244	19711001
BE 774760	A1	19720214	BE 1971-110007	19711029
FR 2113471	A5	19720623	FR 1971-39229	19711102

GB 1361658	A	19740730	GB 1971-50915	19711102
JP 56037239	B4	19810829	JP 1971-86855	19711102
NL 7115151	A	19720505	NL 1971-15151	19711103
NL 177002	B	19850218		
NL 177002	C	19850716		
US 3773809	A	19731120	US 1972-267106	19720628

## PRIORITY APPLN. INFO.:

US 1970-86587 A 19701103

AB Organic P compds., e.g. PPh<sub>3</sub>, (PhO)<sub>2</sub>PMe, and (MeC<sub>6</sub>H<sub>4</sub>O)<sub>2</sub>PMe, and (MeC<sub>6</sub>H<sub>4</sub>O)<sub>3</sub>P or tri-p-cresyl phosphite complexes with Ni, Zn, or Co, formed in the catalytic **hydrocyanation** of MeCH:-CHCH<sub>2</sub>CN (I) to dinitriles, were separated from the organic nitriles by extraction with hexane, heptane, or cyclohexane at 25-50°. Thus, a catalyst mixture was prepared by agitating NiCl<sub>2</sub>, Zn powder, I, and mixed tritolyl phosphites for 2 hr at 110° to give a mixture containing mixed pentenenitriles, Ni, and NC(CH<sub>2</sub>)<sub>4</sub>CN, which was shaken with heptane at 25° to give a light phase containing 0.83% Ni and a heavy phase containing 0.15 Ni at 94% **recovery** of the Ni catalyst.

L5 ANSWER 41 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:466068 CAPLUS

DOCUMENT NUMBER: 73:66068

TITLE: Adiponitrile from hydrogen cyanide and 3- and 4-pentenenitriles

INVENTOR(S): Downing, Roland G.; Fouty, Roger A.

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.

SOURCE: Fr. Demande, 13 pp.

CODEN: FRXXBL

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2010935	A5	19700220	FR 1969-19833	19690613
US 3564040	A	19710216	US 1968-737069	19680614
BE 733162	A	19691117	BE 1969-733162	19690516
NL 6908981	A	19691216	NL 1969-8981	19690612
GB 1219995	A	19710120	GB 1969-1219995	19690613

## PRIORITY APPLN. INFO.:

US 1968-737069 A 19680614

AB A mixture of 3- and 4-pentenenitriles was treated continuously at 60° with a catalyst consisting of 1 mole Ni P(OC<sub>6</sub>H<sub>4</sub>Me-p)<sub>3</sub>4, 2 moles ZnCl<sub>2</sub>, and 12 moles P(OPh)<sub>3</sub> as HCN gas introduced over 4 hr to give 80% adiponitrile, after 95 **recyclings** of unreacted starting materials. The presence of 2-pentenenitriles reduces catalyst effectiveness.

L5 ANSWER 42 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:54813 CAPLUS

DOCUMENT NUMBER: 72:54813

TITLE: Modified charcoal-cyanide catalyst for acrylonitrile production

INVENTOR(S): Smith, Clifford E.

PATENT ASSIGNEE(S): Phillips Petroleum Co.

SOURCE: U.S., 3 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:



PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3487028	A	19691230	US 1967-631622	19670418

PRIORITY APPLN. INFO.: US 1967-631622 A 19670418

AB Charcoal is extracted with an alkaline solution, freed of alkali and treated with an alkali metal cyanide or a composition convertible to a cyanide, to give a catalyst used for the conversion of HCN and C<sub>2</sub>H<sub>2</sub> to acrylonitrile (I). Thus, charcoal was ground to 100-325 mesh size, soaked 4 hr in 10% NaOH solution at 90-100°, washed, and soaked 2 hr in 10% oxalic acid solution at 90-100°. The charcoal was sieved again to 100-325 mesh size and treated with an aqueous solution containing equal amts. of NaCN and KCN to give 17.5% weight cyanide pickup. A similar process was carried out using AcOH to pH 7 in a water slurry after the NaOH extraction. The catalyst (1 ml) was placed in an 8 mm diameter quartz upflow fixed-bed reactor and contacted 4 hr with a feed stream of 10% HCN, 10% C<sub>2</sub>H<sub>2</sub>, and 80% H at 1050°F/1 atm to give a selectivity, in terms of moles I recovered for moles C<sub>2</sub>H<sub>2</sub> reacted) after 0.5 hr of .apprx.77.5 compared with 62.2 and 73.2 in runs using 2 conventionally-prepared catalysts. After 4 hr the values were 81.7-2.8 compared with 75.2-6.8.

L5 ANSWER 43 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:12164 CAPLUS

DOCUMENT NUMBER: 72:12164

TITLE: Direct synthesis of acrylonitrile

INVENTOR(S): Ronneau, Claude; Van Tiggelen, Adolphe

PATENT ASSIGNEE(S): Institut Francais du Petrole, des Carburants et Lubrifiants

SOURCE: Fr., 4 pp.

CODEN: FRXXAK

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 1568755		19690530	FR	19670705

AB Acrylonitrile (I) was prepared directly by subjecting a mixture of HCN and C<sub>2</sub>H<sub>2</sub>, obtained by treating N plasma with CH<sub>4</sub> in an apparatus described, to an appropriate catalyst. Thus, N was passed in a cell containing a Cu anode and W cathode, subjected to an elec. arc, the N plasma mixed with CH<sub>4</sub>, the resulting HCN and C<sub>2</sub>H<sub>2</sub> mixture cooled and contacted with Mg at 450-550°, and I recovered from the residual gases.

L5 ANSWER 44 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1969:46885 CAPLUS

DOCUMENT NUMBER: 70:46885

TITLE: Acrylonitrile

INVENTOR(S): Begley, John W.; Pollock, Lyle W.

PATENT ASSIGNEE(S): Phillips Petroleum Co.

SOURCE: U.S., 6 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3419597	A	19681231	US 1968-699456	19680122

PRIORITY APPLN. INFO.: US 1968-699456 A 19680122

AB C2H2 and HCN were produced in a plasma flame reactor and passed to a convertor where acrylonitrile and N-containing by-products, such as succinonitrile (I), acetonitrile (II), and propionitrile (III) were produced. The production of by-products was minimized or compensated for by **recycling** the by-products as quench to the plasma flame. Thus, 100 lb. CH4/hr. was fed to a plasma-flame reactor at a point where the temperature of the H plasma was 4500°F. and 35 lb. NH3/hr. was introduced at a point where the temperature had dropped to 3000°F. Just before leaving the reactor, the gas was quenched to 1800°F. by adding **recycle** streams of I, II, and III and NH3. The feed stream entered the acrylonitrile reactor at 900°F. and the C2H2 and HCN were converted to acrylonitrile over a stationary bed of an alkali metal on charcoal as catalyst. The reaction products left at 1000°F. and were quenched to 300°F. by water. A water scrubber separated H, which was purified in a diffusion cell and **recycled** to a plasma generator. The mixture of acrylonitrile and by-product nitriles was fractionated to provide 100 lb. acrylonitrile and 20 lb. I, II, and III, which were **recycled** to the plasma reactor.

L5 ANSWER 45 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1969:37238 CAPLUS

DOCUMENT NUMBER: 70:37238

TITLE: Acrylonitrile

INVENTOR(S): Bjornson, Geir; Walker, Darrell W.

PATENT ASSIGNEE(S): Phillips Petroleum Co.

SOURCE: U.S., 2 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3418357	A	19681224	US 1965-500227	19651021

PRIORITY APPLN. INFO.: US 1965-500227 A 19651021

AB Acrylonitrile is prepared at 650-1000°F. by contacting a mixture of HCN and acetylene with a catalyst prepared by forming a mixture of an aqueous solution of Na or K tetrasilicate and a C1-5 alkanol to precipitate the tetrasilicate, the precipitated tetrasilicate is dehydrated by increasing the temperature to 900-1500°F. without melting the tetrasilicate to form a hard, porous catalyst, and the resulting catalyst is comminuted to the desired particle size for catalytic conversion. Thus, 150 ml. water glass was mixed with 50 ml. of a solution of 106 g. K2CO3/l. and the solution was stirred into a quantity of MeOH to form a white precipitate. The supernatant liquid was decanted, the solids were slowly dried in vacuo by gradually increasing the temperature to 360°F. over 36 hrs., and the solid material was ground to a 10-20 mesh size and placed in a catalyst activator tube. The material was heated slowly in a stream of dry air to 900°F., the catalytic material kept at that temperature 1 hr., and the dried, agglomerated material ground and screened into a 10-48 mesh size. Then, 0.6591 g. of the prepared catalyst (containing 2.7% K and 13% Na) was charged into a tubular fixed bed reactor, heated at 920°F. in a stream of H for 16 hrs., and a feed stream containing 4.35% HCN, 11.0% acetylene and the remainder H

passed through the catalytic bed at a gaseous hourly space velocity of 443 volume/volume/hr. at 930°F. in a test run extending 8.5 hrs. During the run, 0.0211 g. coke was formed and 0.2969 g. nitriles was **recovered**, with the conversion of the feed to nitrile products at 2 hrs., 3 hrs., 4 hrs., and 8.5 hrs., 55, 50, 42, and 28% resp. The product contained 97 mole % acrylonitrile. Similarly, Davison ID silica gel or a microspheroidal Davison silica gel were used for comparison, and afforded lower conversions and lower purity of acrylonitrile.

L5 ANSWER 46 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1969:11156 CAPLUS  
 DOCUMENT NUMBER: 70:11156  
 TITLE: Regeneration of a spent catalytic solution  
 INVENTOR(S): Sitnikov, G. M.; Gei, A. I.  
 SOURCE: U.S.S.R. From: Izobret., Prom. Obraztsy, Tovarnye  
 Znaki 1968 45(22), 26.  
 CODEN: URXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Russian  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
SU 221667		19680717	SU	19661017

AB The title solution, containing Cu chlorides and NH<sub>4</sub><sup>+</sup> and used in the synthesis of acrylonitrile by the **hydrocyanation** of acetylene, is regenerated through the destruction of cyanide complexes and gum-forming substances by adding powdered Cu to the solution and then chlorinating it with Cl gas.

L5 ANSWER 47 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1968:12505 CAPLUS  
 DOCUMENT NUMBER: 68:12505  
 TITLE: Regeneration of aqueous copper(I) chloride catalyst  
 PATENT ASSIGNEE(S): Knapsack A.-G.  
 SOURCE: Brit., 11 pp.  
 CODEN: BRXXAA  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1053775		19670104	GB	
DE 1251309			DE	
PRIORITY APPLN. INFO.:			DE	19640220

AB Removal and (or) reduction of nonvolatile organic complex formers in the reaction of HC.tplbond.CH and HCN for the production of acrylonitrile and vinylacetylene is effected by the regeneration of aqueous CuCl catalyst. A min. KCl content of 8% by weight is maintained in the catalyst solution, and make-up CuCl and redissolved CuCl is supplied to the reaction. By varying the solution, a definite C content in relationship to the KCl level is maintained for C levels above 7%; below this value, separation of the resin formed is necessary. Thus, 165 kg. of catalyst solution containing CuCl 40, KCl 12, NH<sub>4</sub>Cl 9, C (resin) 7, and water 32% by weight is charged to a reaction tower at 85°. Each day, 35.9 kg. of solution is removed through a

short pipe into a skimming vessel, where the lighter resin (containing 0.44 kg. CuCl) is removed. The remaining solution flows into a precipitation vessel where

an equal amount of water causes the CuCl to ppt; the supernatant is siphoned off for Cu recovery. The precipitate, containing 3.515 kg. CuCl, 0.28 KCl, 0.21 NH<sub>4</sub>Cl, and 0.49 C, is transferred, as an aqueous suspension, to a CuCl make-up tank where 0.67 kg. CuCl and 0.84 KCl are added. About 0.91 36% HCl is added, and the finished catalyst solution is transferred to the reaction tower. The mole ratio of CuCl to CuCl + KCl + NH<sub>4</sub>Cl is 1:1.70; during catalyst regeneration, this ratio was maintained constant in the tower at 1:1.83. The C index of the aqueous catalyst was 7%, catalyst productivity was 28 g./l./hr. acrylonitrile and 7 g./l./hr. vinylacetylene at an HC.tplbond.CH partial pressure of 8 atmospheric absolute

L5 ANSWER 48 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1967:55068 CAPLUS  
DOCUMENT NUMBER: 66:55068  
TITLE: Aliphatic nitriles  
INVENTOR(S): Davis, Darwin Darrell; Scott, Leon Singrey  
PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.  
SOURCE: U.S., 2 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3278575		19661011	US	19631023

AB Finely divided Ni catalyzes the addition of HCN to olefins to give high yields of the nitrile in a high degree of purity. Thus, ethylene was fed into a saturator containing liquid HCN at controlled temperature The feed gas was mixed with recycle ethylene and fed to the catalytic reactor, a tube filled with catalyst, 10% by weight NiO on cylinders of  $\gamma$ -alumina reduced with H at 450°. The tube was attached to a furnace from which exit gases were fed to a reflux condenser. The exit gases then passed through a cold trap to remove remaining condensable gases. The effluent was conducted to a glass T where most gases were recycled to the feed gas. The remainder of the gas was purged through a gas chromatog. sampling valve and then through a tube containing Ascarite to a wet test meter through which the residual gas was vented. Propionitrile in 95% yield was obtained.

L5 ANSWER 49 OF 49 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1956:8746 CAPLUS  
DOCUMENT NUMBER: 50:8746  
ORIGINAL REFERENCE NO.: 50:1896h-i,1897a-b  
TITLE: Hydrocyanation of acrylonitrile  
INVENTOR(S): Heider, Rudolph L.; Walker, Harry M.  
PATENT ASSIGNEE(S): Monsanto Chemical Co.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2698337		19541228	US	

AB As exemplified by the preparation of  $(\text{CH}_2\text{CN})_2$  (I) by addition of HCN to  $\text{CH}_2$ :  
CHCN

(II), such hydrocyanations are technically simplified by employing well-defined complexes formed between  $\text{HCONMe}_2$  (III) or  $\text{AcNMe}_2$  (IV) and HCN. HCN (1 mole) mixed with 1 mole III liberates 1158 cal. of heat; the f.p.-composition diagram of the HCN-III system demonstrates the existence of a crystalline compound,  $\text{III} \cdot 2\text{HCN}$ , f.p.  $-72.7^\circ$ , and a eutectic (0.57 mole fraction III), f.p.  $-107.0^\circ$ ; the liquid-vapor equilibrium data also show lower vapor pressures for HCN-III mixts. than predicted by Raoult's law. Similarly, mixing 1 mole each of HCN and IV results in evolution of 1396 cal. of heat, and 2 crystalline mol. complexes,  $\text{IV} \cdot \text{HCN}$ , f.p.  $-75.7^\circ$ , and  $\text{IV} \cdot 2\text{HCN}$ , f.p.  $-71.6^\circ$ , and 3 eutectics, f.p.  $-72.7^\circ$ ,  $-80.0^\circ$ , and  $-78.8^\circ$ , are revealed in f.p.-composition studies. In a typical batch experiment, 100 g. III and 29 g.  $\text{NET}_3$  (V) warmed to  $80^\circ$ , then treated dropwise over a 45-min. period with 106 g. II and 54 g. HCN stored in an ice-cold funnel (ice cooling is needed to maintain the exothermic reaction at  $80-90^\circ$ ), and the mixture stirred an addnl. 40 min. and distilled gives 144.9 g. I, b<sub>40</sub>  $167-72^\circ$ ; the solvent **recovery** was 99%. Comparable results (yields of I up to 96%) are obtained by a continuous process (contact time about 10 min. at  $70-90^\circ$ ) with as little as 0.5 mole III/mole of HCN, or with IV in place of III.

=> log y

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
179.10	179.31

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-44.25	-44.25

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